IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	:	HABETHA, et al.
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APPEAL BRIEF
On Appeal from Group Art Unit 2617

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Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed on April 28, 2011 and in response to the final Office Action of February 2, 2011.

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I. REAL PARTY IN INTEREST

The real party in interest of the above-identified application is Koninklijke Philips Electronics N.V., the assignee of record, whose assignment is recorded in the USPTO as of September 21, 2006 on three (3) pages beginning at Reel 018284, Frame 0638.

II. RELATED APPEALS AND INTERFERENCES

Appellant is not aware of any pending appeals, judicial proceedings, or interferences which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

a) Claims 1-37 are pending at the time of filing this Appeal Brief, stand rejected in a final Office Action dated February 2, 2011, and are the subject of this appeal.

b) Claims 1 and 31 are independent.

IV. STATUS OF AMENDMENTS

The claims listed in section "VIII. Claims Appendix" of this Appeal Brief correspond to the claims as submitted in Appellant's response filed on December 29, 2010 (in response to the Office Action dated September 29, 2010). No claim amendments have been submitted following the response of December 29, 2010, nor are any amendments pending.

V. SUMMARY OF CLAIMED SUBJECT MATTER[1]

The claimed invention, as recited in claim 1, is directed to a method for a distributed beaconing period protocol for a device in an ad hoc network of devices (see Appellant's specification at least at the title and at page 2, lines 24-27), comprising the device performing: dividing a medium access time into a sequence of at least one contiguous superframe beginning at a Beacon Period Start Time (page 4, lines 26-30); partitioning the superframe into a slotted Beaconing Period (BP), having a plurality of contiguous beacon slots, followed by a data transfer period (Figs. 2A, 2B, page 2, lines 30-31); and associating with at least one of an existing ad hoc network BP (page 6, lines 7-9) or creating a new ad hoc network BP as the BP of the device (page 6, lines 11-16).

The claimed invention, as recited in claim 31, is directed to a distributed beaconing apparatus for an ad hoc network device (see Appellant's specification at least at the title and at page 2, lines 24-27), comprising: a receiver for receiving beacons and data transfers from other ad hoc network devices (page 5, lines 28-31); a transmitter for transmitting beacons of the device and data (page 6, lines 26-28); a distributed beacon period processing component that processes received beacons and beacons of the device for transmission; a controller operatively coupled to said distributed beacon processing component and configured to direct said processing

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[1] It should be explicitly noted that it is not Appellant's intention that the currently claimed or described embodiments be limited to operation within the illustrative embodiments described below beyond what is required by the claim language. Further description of the illustrative embodiments are provided indicating portions of the claims which cover the illustrative embodiments merely for compliance with requirements of this appeal without intending to read any further interpreted limitations into the claims as presented.

component to (page 7, line 31-page 8, line 3)– i. divide the medium into a sequence of superframes comprising at least one slotted beaconing period (BP) and including a certain number of beacon slots each having a pre-determined beacon slot length, said slotted BP being followed by a data transfer period (Figs. 2A, 2B, page 2, lines 30-31), and ii. associate with at least one of an existing ad hoc network BP (page 6, lines 7-9) and a new ad hoc network BP as the BPs of the device (page 6, lines 11-16).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 1-3, 5-7, 9-11, 21, 22, and 26-33 are properly rejected under 35 U.S.C. §102(e) as anticipated by US Patent Publication 2003/0169697 to Suzuki et al. ("Suzuki").

B. Whether claims 4, 8, 12-20, 23-25, and 34-37 are properly rejected under 35 U.S.C. §103(a) as unpatentable over Suzuki in view of US Patent Publication 2003/0012176 to Kondylis et al. ("Kondylis").

VII. ARGUMENT

Appellant respectfully traverses the rejections in accordance with the detailed arguments set forth below.

A. Claims 1-3, 5-7, 9-11, 21, 22, and 26-33 are not properly rejected under 35 U.S.C. §102(e) as anticipated by Suzuki.

1. Claim 1

Independent claim 1 recites:

> *A method for a distributed beaconing period protocol for a device in an ad hoc network of devices, comprising the device performing:*
> *dividing a medium access time into a sequence of at least one contiguous superframe beginning at a Beacon Period Start Time;*
> ***partitioning the superframe into a slotted Beaconing Period (BP), having a plurality of contiguous beacon slots, followed by a data transfer period**; and*
> *associating with at least one of an existing ad hoc network BP or creating a new ad hoc network BP as the BP of the device.* [Emphasis added].

Beginning on page 3 of the final Office Action, the Examiner maintains that Suzuki, Fig. 17, discloses the feature of partitioning a superframe into a slotted beaconing period having a plurality of contiguous beacon slots, as set forth in Appellant's claim 1. Suzuki, Fig. 17, illustrates a parent superframe, which appears to include a first beacon slot followed by a first Contention Access Period (CAP) and a first Contention Free Period (CFP), a second beacon slot followed by a second CAP and a second CFP and an unassigned Guaranteed Time Slot (GTS), and a third beacon slot followed by a third CAP and a third CFP. Therefore, Suzuki's superframe apparently includes a plurality of beacon slots.

Beginning on page 4 of the final Office Action, the Examiner interprets the term "contiguous beacon slots" as being neighboring or adjacent beacon slots being close or near or next to each other but not necessarily touching, therefore, the Examiner maintains that Fig. 17 of Suzuki reads on claim 1 because the beacon slots in Suzuki's parent superframe are close or near to each other even with the CAP and CFP in between the beacon slots.

Appellant respectfully traverses this rejection.

Appellant respectfully asserts that the plain meaning of the term "contiguous" is sharing a common border, touching, and sharing an edge or boundary. For example, connecting without a break (e.g. "the 48 contiguous states plus Alaska and Hawaii"), or connected in time, uninterrupted (e.g. "President Franklin D. Roosevelt served more than three contiguous terms in office.).

Appellant respectfully asserts that the Examiner's interpretation of the term "contiguous" as being neighboring or adjacent beacon slots being close or near or next to each other but not necessarily touching is unfounded and inconsistent with the plain meaning of "contiguous." Suzuki's beacon slots are separated at least by a CAP and a CFP, and as such, Suzuki's beacon slots are not contiguous. Furthermore, Appellant's specification does not contradict the ordinary meaning of the term "contiguous" as one of ordinary skill in the art would understand from reading the specification.

Therefore, Appellant respectfully submits that Suzuki does not disclose the feature of partitioning the superframe into a slotted Beaconing Period (BP), having a plurality of contiguous beacon slots, followed by a data transfer period. Therefore, the claim 1 rejection under 35 U.S.C. §102(e), should be reversed.

Even if the Board accepts the Examiner's interpretation that the term "contiguous" can mean close to or near to or next to but not necessarily touching, an interpretation with which Appellant neither agrees with nor acquiesces to, Appellant respectfully asserts that Suzuki's beacon slots are not near to each other, and therefore Suzuki's beacon slots are not contiguous.

In contrast to the Examiner's allegation that Suzuki's beacon slots are next to each other and are thus contiguous, a close examination of Suzuki Fig. 17 reveals that the beacon slots appear to be relatively far apart from each other. For example, Suzuki Fig. 17 appears to illustrate that the time interval for each of the CAP, CFP, and Unassigned GTS is much greater than the time interval for the beacon slot. Thus, the beacon slots are not next to each other because they are separated by what appears to be a much larger time interval relative to the time interval of the beacon slot. In other words, the cumulative time intervals of the CAP, CFP, and the Unassigned GTS (between the second and third beacon slots) appear to be far greater than the time interval of the beacon slot. Thus, Suzuki's beacon slots are not next to each other, and therefore cannot be contiguous. As such, Suzuki does not disclose the feature of partitioning the superframe into a slotted Beaconing Period, having a plurality of contiguous beacon slots, followed by a data transfer period, and the rejection of claim 1 under 35 U.S.C. §102(e), should be reversed.

Furthermore, Suzuki Fig. 17 does not disclose a slotted Beaconing Period, having a plurality of contiguous beacon slots, followed by a data transfer period as required in claim 1. In contrast to claim 1, Suzuki Fig. 17 shows a parent superframe which includes 3 beacon slots. However, Suzuki Fig. 17 does not disclose a slotted Beaconing Period.

Although Suzuki Fig. 17 illustrates a superframe with 3 beacon slots, the beacon slots cannot be interpreted as a Beaconing Period because the period between the first and third beacon slots also includes a CAP, CFP, and an Unassigned GTS. The CAP, CFP and Unassigned GTS are used for other than beacon transmission and reception. In other words, Suzuki seems to teach a superframe having a beacon slot, followed by a period of non-beacon transmission/reception (e.g. CAP/CFP/Unassigned GTS), then followed by another beacon slot. However, there is no Beaconing Period disclosed in Suzuki Fig. 17. Accordingly, the rejection of claim 1 under 35 U.S.C. §102(e), should be reversed.

In addition, Suzuki Fig. 17 does not disclose a slotted Beaconing Period, having a plurality of contiguous beacon slots, followed by a data transfer period as required in claim 1.

As noted above, Suzuki does not disclose a Beaconing Period. Therefore, Suzuki does not disclose a Beaconing Period followed by a data transfer period.

In contrast to claim 1, Suzuki Fig. 17 appears to teach that the data transfer period (e.g. CAP/CFP/Unassigned GTS) occurs in between the beacon slots. This is different from claim 1, which requires the data transfer period follows the Beaconing Period. As such, the rejection of claim 1 under 35 U.S.C. §102(e), should be reversed.

For the reasons set forth above, Appellant respectfully asserts that the Examiner has not presented a prima facie case of anticipation and the rejection of independent claim 1 under 35 U.S.C. 102(e), is unfounded and should be reversed.

2. Claim 31

Independent claim 31 is different from claim 1. For example, claim 31 is directed toward

a distributed beaconing apparatus for an ad hoc network device, while claim 1 is directed toward a method for a distributed beaconing protocol for a device in an ad hoc network of devices.

Claim 31 includes the features of divide the medium into a sequence of superframes comprising at least one slotted beaconing period (BP) and including a certain number of beacon slots each having a pre-determined beacon slot length, said slotted BP being followed by a data transfer period.

On page 15 of the final Office Action, the Examiner points to Suzuki, Figs. 4, 7, and 17, alleging that Suzuki discloses a parent superframe has slotted contiguous beacon slots followed by data transfer period. Appellant respectfully traverses this argument.

As noted in the above arguments for claim 1, Suzuki does not disclose a Beaconing Period. Furthermore, Suzuki does not disclose a Beaconing Period being followed by a data transfer period, as more particular recited in claim 31. As such, Appellant respectively submits that the Examiner has not presented a prima facie case of anticipation and the rejection of independent claim 31 under 35 U.S.C. 102(e), is unfounded and should be reversed.

3. Claims 2, 3, 5-7, 9-11, 21, 22, and 26-33

Each of claims 2, 3, 5-7, 9-11, 21, 22, and 26-30 ultimately depends from claim 1, and each of dependent claims 32 and 33 ultimately depends from claim 31. Furthermore, each dependent claim includes additional distinguishing features. For each dependent claim Appellant applies the above arguments from claim 1 to each dependent claim. Thus, Appellant respectfully submits that the rejections to claims 2, 3, 5-7, 9-11, 21, 22, and 26-33 under 35 U.S.C. 102(e), are unfounded and should be reversed.

B. Claims 4, 8, 12-20, 23-25, and 34-37 are not properly rejected under 35 U.S.C. §103(a) as unpatentable over Suzuki in view of Kondylis.

4. Claims 4, 8, 12-20, 23-25, and 34-37

Each of claims 4, 8, 12-20, and 23-25 ultimately depends from claim 1, and each of claims 34-37 ultimately depends from claim 31. Furthermore, each dependent claim includes additional distinguishing features. For each dependent claim Appellant applies the above arguments from claim 1 or claim 31 to each respective dependent claim. Kondylis does not cure the deficiencies of Suzuki as noted above with respect to Appellant's claim 1 or claim 31. Thus, Appellant respectfully submits that the rejections of claims 4, 8, 12-20, 23-25, and 34-37 under 35 U.S.C. 103(a), are unfounded and should be reversed.

CONCLUSION

In light of the above, Appellant respectfully submits that the rejection of claims 1-37 are in error, legally and factually, and must be reversed.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1. (Previously presented) A method for a distributed beaconing period protocol for a device in an ad hoc network of devices, comprising the device performing:

dividing a medium access time into a sequence of at least one contiguous superframe beginning at a Beacon Period Start Time;

partitioning the superframe into a slotted Beaconing Period (BP), having a plurality of contiguous beacon slots, followed by a data transfer period; and

associating with at least one of an existing ad hoc network BP or creating a new ad hoc network BP as the BP of the device.

2. (Previously presented) The method of claim 1, further comprising:

if the BP of the device is not protected in at least one neighboring BP, protecting the unprotected BP in the at least one neighboring BP; and

once the BP of the device is protected, operating normally.

3. (Previously presented) The method of claim 2, wherein the protecting the unprotected BP further comprises including a first reservation for the BP in the beacon of the device in the at least one neighboring BP.

4. (Previously presented) The method of claim 3, wherein the reservation is a Distributed Reservation Protocol DRP reservation of type BP and priority = BP.

5. (Previously presented) The method of claim 3, wherein the associating further comprises:

choosing an empty slot of the BP of the device; and

beaconing a beacon of the device in the chosen empty slot.

6. (Previously presented) The method of claim 5, further comprising including information regarding the beacons of other devices in the beacon of the device.

7. (Previously presented) The method of claim 6, wherein the protecting the unprotected BP further comprises including a second reservation in the beacon of the device to announce the BP of said other devices.

8. (Previously presented) The method of claim 7, wherein the second reservation is a Distributed Reservation Protocol DRP reservation of type BP and priority = BP.

9. (Previously presented) The method of claim 3, wherein the associating comprises:

scanning the medium to detect at least one BP during the at least one superframe;

if at least one BP is not detected, starting a new BP as the BP of the device at a beacon period start time calculated in a pre-determined manner; and

if at least one BP is detected, deciding to perform one of:

i. joining at least one of the at least one detected BP as the BPs of the device, and

ii. starting a new BP as the BP of the device at a beacon period start time determined in a pre-determined manner.

10. (Previously presented) The method of claim 9, wherein the associating further comprises:

choosing an empty slot of the BP of the device and

beaconing a beacon of the device in the chosen empty slot.

11. (Previously presented) The method of claim 10, further comprising including information regarding the beacons of other devices in the beacon of the device.

12. (Previously presented) The method of claim 8, wherein the protecting further comprises including a third reservation in the beacon of the device in the neighboring BPs to announce the BP.

13. (Previously presented) The method of claim 12, wherein the third reservation is a Distributed

Reservation Protocol DRP reservation of type BP and priority = BP.

14. (Previously presented) The method of claim 3, wherein the operating normally comprises:

receiving beacons over the medium; and

when a beacon comprising a Distributed Reservation Protocol DRP reservation of type BP is received, performing

- scanning for a new BP, and
- when a new BP is detected, protecting the new BP.

15. (Previously presented) The method of claim 14, wherein the protecting further comprises including a fourth reservation in the beacon of the device to protect the BP.

16. (Previously presented) The method of claim 15, wherein the fourth reservation is a DRP reservation of type BP and priority = BP.

17. (Previously presented) The method of claim 14, wherein the operating normally further comprises a device optionally switching BP if two or more BPs co-exist.

18. (Previously presented) The method of claim 17, wherein the switching BP by the device further comprises:

including a special switching announcement field in a beacon to announce a new BP; and

beaconing for at least a predetermined announcement number of consecutive superframes with the beacon including the special switching announcement field.

19. (Previously presented) The method of claim 18, wherein the beaconing further comprises one selected from the group consisting of:

(a) performing

- including a DRP reservation of type BP to protect the new BP, if the new BP is not already protected, and
- stopping transmission of the beacon, if the new BP is already protected; and

(b) transmitting a beacon in the new BP.

20. The method of claim 18, wherein the operating normally further comprises:
when a beacon comprising a BP switching announcement of another device is received, performing

scanning for a new BP, and

- when a new BP is detected, protecting the new BP.

21. (Previously presented) The method of claim 2, wherein the operating normally further comprises terminating the BP.

22. (Previously presented) The method of claim 2, wherein the operating normally further comprises clearing a Distributed Reservation Protocol DRP BP reservation of the device when no beacons are received during the BP for a pre-determined clearing number of consecutive superframes.

23. (Previously presented) The method of claim 14, wherein the operating normally further comprises when at least two BPs collide, until there are no longer any colliding BPs, repeatedly performing at least one of selected from the group consisting of:

(a) performing:

- searching each colliding BP for enough empty beacon slots for the devices of another colliding BP, and
- moving at least one colliding BP to a non-colliding beacon period start time; and

(b) performing

- searching the superframe for enough empty beacon slots for the BP, and
- and moving the BP to the empty slots in the superframe.

24. (Previously presented) The method of claim 23, wherein the operating normally further comprises when an existing DRP reservation collides with a BP, moving the colliding Distributed Reservation Protocol DRP reservation to a non-colliding time.

25. (Previously presented) The method of claim 23, wherein the operating normally further comprises moving the BP to a non-colliding time when an existing Distributed Reservation Protocol DRP reservation collides with a BP.

26. (Previously presented) The method of claim 1, further comprising each device of the ad hoc network of devices beaconing in the same BP, by performing a selected one from the group consisting of:

- beaconing in parallel in each BP of each device of said network of devices; and
- switching a BP to beacon in a same BP as other devices of said network of devices.

27. (Previously presented) The method of claim 26, wherein a device that does not have to switch its BP is chosen in a distributed way based on an identifier of each device of said network of devices.

28. (Previously presented) The method of claim 26, wherein a device that does not have to switch its BP is chosen in a distributed way based on the number of occupied beacon slots in the BP of each device of said network of devices.

29. (Previously presented) The method of claim 26, wherein a device that does not have to switch its BP is chosen in a distributed way based on the size of the portion of the superframe that is reserved by the beacons in a BP of a device of said network of devices.

30. (Previously presented) The method of claim 1, wherein each device of said network of devices may beacon in a different BP.

31. (Previously presented) A distributed beaconing apparatus for an ad hoc network device, comprising:

a receiver for receiving beacons and data transfers from other ad hoc network devices;

a transmitter for transmitting beacons of the device and data;

a distributed beacon period processing component that processes received beacons and beacons of the device for transmission;

a controller operatively coupled to said distributed beacon processing component and configured to direct said processing component to -

i. divide the medium into a sequence of superframes comprising at least one slotted beaconing period (BP) and including a certain number of beacon slots each having a pre-determined beacon slot length, said slotted BP being followed by a data transfer period, and

ii. associate with at least one of an existing ad hoc network BP and a new ad hoc network BP as the BPs of the device.

32. (Previously presented) The apparatus of claim 31, wherein said controller is further configured to direct said distributed beacon processing component to:

iii. protect the BPs of the device in neighboring BPs; and

iv. operate normally, once the BP of the device is protected.

33. (Previously presented) The apparatus of claim 32, wherein the controller is further configured to:

choose an empty slot of the BP of the device; and

beacon a beacon of the device in the chosen empty slot.

34. (Previously presented) The apparatus of claim 32, wherein the distributed BP processing component protects the BP of the device by including a Distributed Reservation Protocol DRP reservation of type BP and priority = BP in the beacon of the device to announce the BP to neighboring devices.

35. (Previously presented) The apparatus of claim 34, wherein the distributed BP processing component is further configured to include information regarding the beacons of other devices in

the beacon of the device.

36. (Previously presented) The apparatus of claim 35, wherein the controller is further configured to control the distributed BP to:

- scan the medium to detect at least one BP during the at least one superframe;
- if at least one BP is not detected, start a new BP as the BP of the device at a beacon period start time calculated in a pre-determined manner; and
- if at least one BP is detected, decide to perform one of:
  - i. join one of the at least one detected BP as the BP of the device, and
  - ii. start a new BP as the BP of the device at a BP start time determined in a pre-determined manner.

37. (Previously presented) The apparatus of claim 36, wherein for normal operation the controller is further configured to:

when a received beacon includes at least one of a Distributed Reservation Protocol DRP reservation of type BP and a BP switching announcement for another device

- scan for a new BP, and
- when a new BP is detected, protect the new BP;

when a beacon of a neighbor is received, protect the neighbor BP;

when the device switches BPs announce in the beacon of the device, for a predetermined announcement number of consecutive superframes, that the device is switching BP;

optionally switch BPs if two or more BPs co-exist;

terminate the BP;

clear a DRP BP reservation of the device when no beacons are received during the BP for a pre-determined clearing number of consecutive superframes.

when at least two BPs collide, until there are no longer any colliding BPs, repeatedly perform at least one function selected from the group consisting of:

search each colliding BP for enough empty beacon slots for the devices of another colliding BP; and move at least one colliding BP to a non-colliding beacon period start time; and

when an existing DRP reservation collides with a BP, moving the colliding DRP

reservation to a non-colliding time of the data transfer period.

IX. EVIDENCE APPENDIX

No evidence has been submitted pursuant to §§ 1.130, 1.131, or 1.132 of this title nor any other evidence entered by the examiner and relied upon by Appellant in the appeal.

X. RELATED PROCEEDINGS APPENDIX

Appellant is not aware of any appeals or interferences related to the present application.